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Statistical Process Control of PECVD

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Deposition Rate

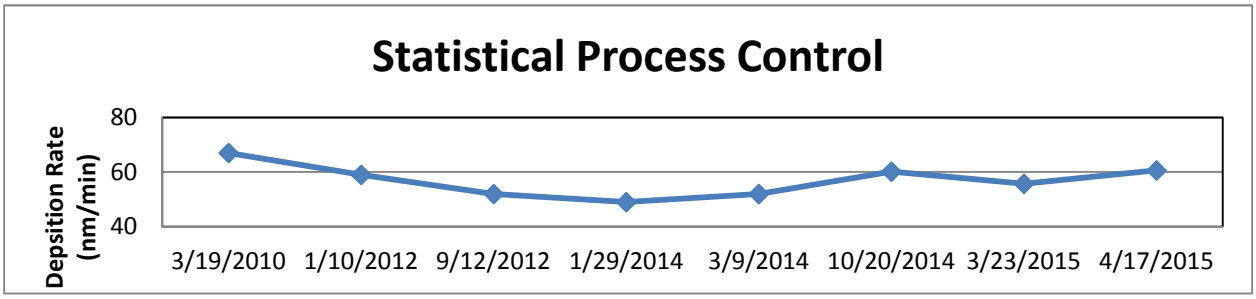
1. SiO2

- Default Recipe

T = 350 ºC
10%SiH4/He = 50 sccm
N2O = 710 sccm
N2 = 90 sccm
Pressure = 1,000 mTorr
RF = 20 W
Refractive index = 1.462 at 632.8 nm (updated on 9/12/2012)

- Literature value = 1.457 at 632.8 nm

Date	Deposition Rate (nm/min)
3/19/2010	67
1/10/2012	59
9/12/2012	52
1/29/2014	49
3/9/2014	52
10/20/2014	60
3/23/2015	56
4/17/2015	61



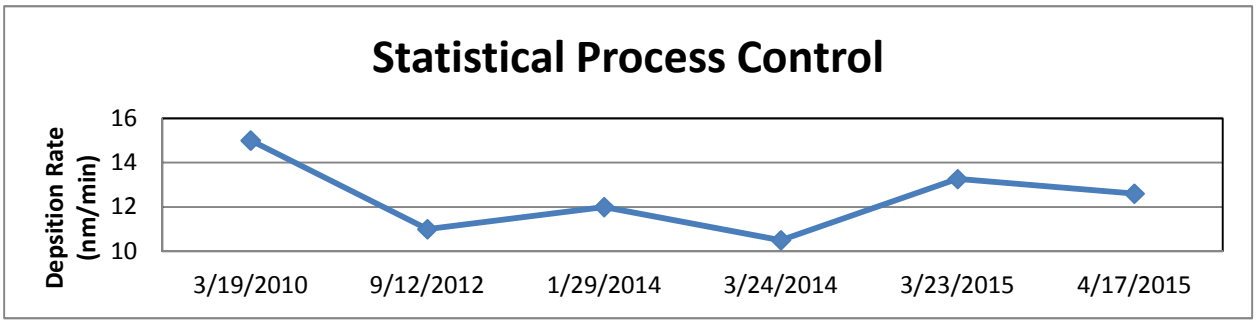
2. Si3N4

- Default Recipe

T = 350 ℃
10%SiH4/He = 170 sccm
NH3 = 20 sccm
N2 = 820 sccm
Pressure = 1,000 mTorr
RF = 20 W (13 sec)
LF = 20 W (7 sec)
Refractive index = 1.981 at 632.8 nm (updated on 9/12/2012)

- Literature value = 2.023 at 632.8 nm

Date	Deposition Rate (nm/min)
3/19/2010	15
9/12/2012	11
1/29/2014	12
3/24/2014	11
3/23/2015	13
4/17/2015	13



3. a-Si

- Default Recipe

T = 250 ℃
10%SiH4/He = 500 sccm
Pressure = 1,000 mTorr
RF = 8 W
Refractive index = 3.843 (updated on 9/21/2012)

- Literature value = 4.500 at 632.8 nm

Date	Deposition Rate (nm/min)
3/19/2010	17
9/12/2012	5.7
3/24/2014	5.3
3/23/2015	6.9
4/17/2015	6.5